

XVIII.—Notes on the Animals of certain Genera of Mollusca.

By ARTHUR ADAMS, F.L.S. &c.

GENUS VOLUTHARPA, Fischer.

M. FISCHER, in his 'Journal de Conchyliologie,' 1855, p. 85, describes a genus under the name of *Volutharpa*, from the shell only. When at Hakodadi, I found the *Bullia Perryi* of Jay, and refer it to M. Fischer's genus; and further north, at Aniwa Bay, Saghalien, I met with *Bullia ampullacea* of Middendorf, and believe it to form another species of the same genus. I procured by the dredge one living specimen of the latter species from a depth of 17 fathoms. The animal is like *Buccinum*, of a white colour sparsely sprinkled with black on the head, foot, and siphon. The tentacles are broad, close together at the base, and rather short, with the eyes on the outer side, near the middle. The siphon is thick and short, and the foot is fleshy, and simple behind. The operculum is subcircular, with concentric striæ of growth; and the nucleus is within the margin, at the fore part.

Thus the simple foot and the possession of eyes remove it from the genus *Bullia*, and the form and texture of the shell from *Buccinum*. The operculum is different from that of *Pseudoliva* or *Gastridia*, and the shell is without the tooth at the fore part of the outer lip. The natural position of the genus is between *Buccinum* and *Pseudoliva*.

Species of Volutharpa.

- same sp.* { *Deshayesiana*, *Fisch.*
ampullacea, *Midd.* (*Bullia*).
Perryi, *Jay* (*Bullia*).
Limnæana, *A. Ad.* (*Bullia*).

GENUS NATICINA, Gray.

The animal of this genus resembles that of *Morvillia* or *Limneria*; and the genus should be removed from the family Naticidæ to that of Velutinidæ. The tentacles are short and rather flattened, with the eyes at their outer bases. The mantle lines the shell, and is thickened at the edge, but is not produced beyond, and does not cover the margin of the shell, as it does in *Marsenina* and *Velutella*. The foot is small and oblong, auriculate on each side in front; and there is no operculum. The male organ is large and compressed, and is situated at the outer base of the right tentacle. A fold of the mantle covers the columellar lip of the shell. The animal is timid, crawls very slowly, and is of a dead white colour. Dredged from 46 fathoms, in the Straits of Korea.

GENUS STENOTHYRA, Benson.

The animal of *Stenothyra* or *Nematura* is similar to that of

Hydrobia and *Ammicola*. The rostrum is large, thick, and annulated, and, when the animal is crawling, is extended beyond the fore part of the foot. The tentacles are strong and subulate, and the eyes are large, prominent, and black, on the outer side of their bases. The foot is oblong and moderate, and strongly auriculate on each side in front; the sole and operculigerous lobe are simple. The operculum is subspiral; it is thick and shelly, and is composed of three rapidly enlarging whorls.

I discovered the species *S. punctostriata*, A. Adams, crawling slowly on the moist soil at the roots of grass, between high- and low-water marks, on the banks of the river Yang-tse. It appears to be very sluggish and inactive in its habits.

In Borneo I found another species, *S. olivacea*, A. Adams, adhering to the under surface of dead leaves, and crawling about the soft mud by the sides of ponds. The nature of the operculum places this genus in the same group as *Hydrobia*, and not in the family Viviparidæ, where my brother and myself have arranged it, judging from the similarity of the shell to that of *Bithynia*.

Associated with these little *Stenothyra*, in considerable numbers, was a species of *Assiminia*, of large size, and, I believe, at present unnamed, if it be not *A. Francisca* of Gray, from India.

The animal of this species progresses very much in the same manner as *Truncatella*, by means of its broad muzzle and short rounded foot. Short cylindrical peduncles arise from swollen conical bases, wide apart on the upper surface of a flattened head, beyond which a dilated muzzle, bilobed at the end and ringed with black-brown lines, extends far beyond the front edge of the foot. A line is conspicuous on the sides of the peduncles, indicating the union of the tentacles and eye-pedicels. The eye, with a pale iris and a large black pupil, is placed at the end of an oblong bulb. The sides of the foot are marked with lateral, wavy, light brown dotted lines; the sole is ovate, obtuse at both ends, and of a dull dirty white. The operculum is thin, horny, subspiral, and rather pointed behind.

Genus UMBONIUM, Link.

At Hakodadi I had an opportunity of examining the animal of *Umbonium giganteum* of Lesson, which occurs along the sands of the bay, but is extremely difficult to obtain alive without dredging for it. I found Dr. Gray's account of the creature to be very correct in the main; but I imagine the simplest view of the nature of the veil is to consider it a dilatation of the left tentacle. The lateral membrane in this species has four filaments on each side, whereas in *U. vestiarium*, Linn. (*Rotella lineolata*, Lam.), Dr. Gray mentions only three. The eye-peduncles

are as long as the tentacles, and flattened; and the eyes are not well developed—less so on the right side than on the left. The absence of a rostrum, and other peculiarities, perfectly justified the learned Doctor in raising *Umbonium* to the rank of a family. Mr. Fairbank had evidently seen the animal alive; but, owing to his imperfect acquaintance with the nature or names of the organs of Mollusca, his description is not only obscure, but absurd.

Genus PHOTINULA, H. & A. Adams.

In the animal of the species of *Photinula*, which I observed, the eye-pedicels are not so distinct from the tentacles as in most Trochidæ; the head-lobes are simple, the muzzle is broad, the neck-lappets are large, and there are four tentacular filaments on each side on the lower edge of the lateral membrane. From this description it will be seen that the position assigned to this genus by Dr. Gray, in his 'Guide to Mollusca,' is not correct, the animal differing very materially from that of the genera *Umbonium* or *Rotella*. It indeed belongs to the Trochidæ, and is most nearly allied to *Margarita*; but the shell differs in texture and form, and is not umbilicated. In *Gibbula* the number of the lateral vibracula is three on each side; the same appears to be the case in *Oxysteles*, which genus *Photinula* most resembles; while in *Margarita* there are five filaments on each side—two on the lateral membrane, and three on the opercular lobe.

Genus MACROSCHISMA, Swainson.

At Tabu-Sima, a small island about thirty miles from Niegata, in Nippon, Japan, I dredged, at 25 fathoms, and at a quarter of a mile from the shore, two living examples of *Macroschisma*.

The shell is not situated near the hinder end of the animal (as Mr. Cuming, to the best of his recollection, believes), but on the fore part; and the apex of the shell is not anterior, as Dr. Gray states, but subcentral and inclined backwards.

The animal is very large and elongated, bearing the shell in a sloping direction obliquely upwards on the fore part of the body. The tentacles are filiform and very long, with the eyes large, black, and conspicuous, on slight swellings at their outer bases. The front edge of the mantle is extended, and gives the appearance of a large veil over the head. The mantle is not developed, covering the shell, as in *Fissurellidæ*; and neither the mantle-margin nor anal tube is fringed. The edge of the mantle is furnished with short papillæ, four on each side and two behind, which are recurved over the edge of the shell. The anal tube is elongate and cylindrical, and is directed backwards and a little upwards through the fissure in the shell. The foot,

large and fleshy, is produced behind, and tapering. In outline it is ovate; and there are no papillæ or cirrhi on the sides. In progression, the form of the foot varies considerably, sometimes being greatly dilated at the sides, and at others extended in front and contracted and pointed behind.

Genus TUGALIA, Gray.

The head in this genus, as in other *Fissurellidæ*, is rostriform and annulated; the tentacles are long and subulate; and the eyes, black and prominent, are placed on their outer bases. The mantle is double-edged; the upper edge is reflected over and covers a considerable portion of the margin of the shell; the lower edge forms a deep plicate curtain, simple on its free dependent edge. Over the head this free simple margin forms a fold, which is received into the emargination at the fore part of the shell. Under this curtain, on the side of the foot, is a row of tubercles. The foot is strong, of moderate size, ovate, and rather produced behind, and is margined along the lower edge.

The species I have observed is, perhaps, *Tugalia parmophoroides* or *Emarginula parmophoroides* of Quoy.

From the description it will be seen that the animal most nearly approaches that of *Scutus*; but the shell is more exposed, and the tentacular filaments on the side, seen in *Scutus*, are reduced in this genus to tubercles. In Rüppell's figure of *T. elegans*, Gray (or *P. australis*, Rüpp., not Quoy), the mantle is shown covering much more of the shell than in my Japanese species. There is an *Emarginula* figured by Savigny which is very similar to my *Tugalia*; but the fissure shown in the shell proves it to be a true *Emarginula*.

Genus TOMICHIA, Benson.

I have discovered two species of *Tomichia* in the Japan islands. In both these the animal is generically the same.

The rostrum is flattened, bilobed and dilated at the end, and conspicuously annulated on its upper surface. The tentacles are very short, flattened, and triangular. The eyes are large, black, and sessile on the upper surface and outer side of the bases of the tentacles, and are surrounded by a light-coloured areola. The foot is large, rounded in front and behind, and is divided a little before the middle by a transverse groove.

In crawling, the animal progresses, like *Pedipes*, by alternately advancing the fore part of the foot and bringing up the hind part; the muzzle is also used as an aid to progression, just as it is in *Truncatella*, which genus *Tomichia* seems most to resemble; in fact, judging from an allusion to the animal, I should ima-

gine the *Truncatella dubiosa* of the late lamented Professor C. B. Adams to be a species of *Tomichia*.

On the side of the foot is seen a dark line, which indicates the position of the opercular lobe. In one species, from Matsumai, this dark-coloured lobe is more conspicuous than in the other, from Sado.

Both species are found on damp banks covered with vegetation, in rocky situations near the sea.

The colour of the long head and flattened rostrum is light blackish-brown; and the foot is pale brown, with the sole nearly white. The obtuse tips of the triangular tentacles are dark, and may have induced Mr. Benson to name *Diplommatina* (a genus not far removed in organization from *Tomichia*) the "double-eyed,"—the existence of two eyes on each side being extremely improbable.

Shanghai, Feb. 20, 1860.

XIX.—*Description of a new species of Cassowary living in the Menagerie of the Babu Rajendra Mullick at Calcutta.* By EDWARD BLYTH, Curator of the Royal Asiatic Society's Museum, Calcutta*.

CASUARIUS UNO-APPENDICULATUS, nobis, n. s., is so named from its peculiarity of having but a single pendulous caruncle in front of the neck. Specimen apparently more than half-grown, and much paler in the colouring of its plumage than specimens of the same age of the common *C. galeatus*, two fine examples of which are associated with it in the same paddock. In lieu of the two bright-red caruncles of the latter, the new species has but a single, small oblong or elongate-oval, yellow caruncle; and the bright colours of the naked portion of the neck are differently disposed. The cheeks and throat are smalt-blue, below which is a large, wrinkled, yellow space in front of the neck, terminating in front in the oval button-like caruncle, and its lower portion being continued round behind; while on the sides of the neck the yellow naked portion is continued down to its base, the bordering feathers more or less covering and concealing this lateral stripe of unfeathered skin: on the hind part of the neck the bare yellow skin is not tumid and corrugated as in the common Cassowary, where also this part is bright red. The casque is about equally developed at this age in the two species. The legs of the new species are smaller, from which circumstance I doubt whether it attains to quite so large a size as the other †.

* From the Journal of the Royal Asiatic Society of Bengal (1860), vol. xxx. p. 113. Communicated by P. L. Sclater.

† It appears, by a letter from Mr. Westerman, that a living Cassowary
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